AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 – 11 (Cancelled).

12. (New) A process for hydrodechlorination of a dichlorodifluoromethane compound comprising:

placing a carbon supported palladium catalyst in a reactor, and

feeding a dichlorodifluoromethane compound to the reactor,

wherein the carbon supported palladium catalyst used is prepared by a process for the synthesis of highly active modified carbon supported palladium catalyst comprising simultaneously impregnating activated carbon with a palladium precursor and an aluminum precursor, wherein the aluminum precursor used comprises an organic precursor of aluminum, and the organic aluminum precursor used comprises aluminum isopropoxide.

13. (New) A process according to claim 12 wherein a resulting product of the process is a difluoromethane compound.

14. (New) A process according to claim 13 wherein the difluoromethane compound is difluoromethane.

15. (New) A process according to claim 12 wherein the dichlorodifluoromethane compound is dichlorodifluoromethane.

16. (New) A process according to claim 12 wherein the palladium precursor used comprises palladium chloride.

17. (New) A process according to claim 12 wherein the palladium loading percentage on the support is in the range of 2 - 6 wt % with respect to the carbon support.

18. (New) A process according to claim 12 wherein the palladium loading percentage on the support is 4 wt % with respect to the carbon support.

19. (New) A process according to claim 12 wherein a loading percentage of the aluminum precursor in the support is in the range of 1 - 50 wt % with respect to the support.

20. (New) A process according to claim 12 wherein a loading percentage of the aluminum precursor in the support is in the range of 5 - 20 wt % with respect to the support.

21. (New) A process according to claim 12 wherein the dichlorodifluoromethane compound is dichlorodifluoromethane and wherein a resulting product of the process is a difluoromethane.

22. (New) A process according to claim 21 wherein said process involves conversion of dichlorodifluoromethane on the order of 85 % and selectivity to difluoromethane on the order of 85 %.

23. (New) A process according to claim 21 wherein said process involves conversion of dichlorodifluoromethane on the order of 85 % and selectivity to difluoromethane on the order of 85 % at atmospheric pressure.

24. (New) A process according to claim 21 wherein the catalyst is utilized for hydrodechlorination of dichlorodifluoromethane at a temperature of 250°C.

25. (New) A process according to claim 21 wherein the catalyst is utilized for hydrodechlorination of dichlorodifluoromethane at a temperature of 250°C and a gas hourly space velocity of 4800/h.

26. (New) A process for hydrodechlorination of a dichlorodifluoromethane compound comprising: placing a carbon supported palladium catalyst in a reactor, and feeding a dichlorodifluoromethane compound to the reactor, and wherein the carbon supported palladium catalyst used is prepared by a process for the synthesis of highly active modified carbon supported palladium catalyst comprising simultaneously impregnating activated carbon with a palladium precursor and an aluminum precursor, wherein the co-impregnation of the support is done in the presence of a tetraethyl ammonium hydroxide aqueous solution.

27. (New) A process according to claim 26 wherein the aluminum precursor used comprises an organic precursor of aluminum.

28. (New) A process according to claim 27 wherein the organic aluminum precursor used comprises aluminum isopropoxide.

29. (New) A process according to claim 26 wherein the palladium precursor used comprises palladium chloride.

30. (New) A process according to claim 26 wherein the palladium loading percentage on the support is in the range of 2 - 6 wt % with respect to the carbon support.

31. (New) A process according to claim 26 wherein the palladium loading percentage on the support is 4 wt % with respect to the carbon support.

32. (New) A process according to claim 26 wherein a loading percentage of the aluminum precursor in the support is in the range of 1 - 50 wt % with respect to the support.

33. (New) A process according to claim 26 wherein a loading percentage of the aluminum precursor in the support is in the range of 5 - 20 wt % with respect to the support.

34. (New) A process according to claim 26 wherein the dichlorodifluoromethane compound is dichlorodifluoromethane and wherein a resulting product of the process is a difluoromethane.

35. (New) A process according to claim 34 wherein said process involves conversion of dichlorodifluoromethane on the order of 85 % and selectivity to difluoromethane on the order of 85 %.

36. (New) A process according to claim 34 wherein said process involves conversion of dichlorodifluoromethane on the order of 85 % and selectivity to difluoromethane on the order of 85 % at atmospheric pressure.

37. (New) A process according to claim 34 wherein the catalyst is utilized for hydrodechlorination of dichlorodifluoromethane at a temperature of 250°C.

38. (New) A process according to claim 34 wherein the catalyst is utilized for hydrodechlorination of dichlorodifluoromethane at a temperature of 250°C and a gas hourly space velocity of 4800/h.

39. (New) A method for preparing difluoromethane comprising reacting dichlorodifluoromethane with hydrogen in the presence of a carbon supported palladium catalyst, wherein the carbon supported palladium catalyst used is prepared by a process for the synthesis of highly active modified carbon supported palladium catalyst comprising simultaneously impregnating activated carbon with a palladium precursor and an aluminum precursor, wherein the aluminum precursor used comprises an organic precursor of aluminum, and the organic aluminum precursor used comprises aluminum isopropoxide.

40. (New) A method according to claim 39 further comprising the use of an inert gas.

41. (New) A method according to claim 39 wherein the reaction is conducted at a temperature of 200 to 500°C.

42. (New) A method according to claim 39 wherein the reaction is conducted at a temperature of 300 to 400°C.